

Cryopreservation of *Dendrobium* ‘Jaquelyn Thomas’ (*Dendrobium swartz*) mature seeds by vitrification

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The objective of this study was to develop a simple, reliable, and low-cost cryopreservation method for mature seeds of *Dendrobium* ‘Jaquelyn Thomas’. Vitrification treatments performed prior to cryopreservation included exposure of seeds to pre-vitrification solution 2 (PVS2) at room temperature or at ice temperature for one to five hours before storage in liquid nitrogen. The PVS2 solution consisted of 30% (v/v) glycerol, 15% (v/v) ethylene glycol and 15% (v/v) dimethyl sulfoxide (DMSO) in half-strength MS medium supplemented with 0.4 M sucrose (pH 5.7). After 14 days seeds were removed from cryopreservation and germination rates were evaluated. Seeds placed directly on liquid nitrogen did not germinate after removal from cryopreservation. For the treatments evaluated, the highest germination rate (22%) was observed in seeds exposed to PVS2 for 1 hour on ice. Pre-cooling has shown to be essential for the germination success and survival of seeds after removal from liquid nitrogen. Germinated seeds developed into normal plantlets.